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Assessing the efficacy and stakeholder relations of municipal disaster management centers: A case of O.R. Tambo district municipality, South Africa

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Abstract

This study examines the efficacy of the Municipal Disaster Management Centre (MDMC) in the O.R. Tambo District Municipality (ORTDM) and its working relationships with key stakeholders in South Africa's Eastern Cape Province, a region highly vulnerable to climate-induced hazards, including floods, droughts, and severe storms. Adopting a qualitative research approach, the study draws on in-depth interviews with community members, municipal officials, traditional leaders, and sectoral stakeholders. Thematic analysis is employed to assess the extent to which disaster management policies, legislative frameworks, institutional arrangements, and resource allocation are effectively implemented at the local level. The findings indicate that recurrent natural disasters disproportionately affect already vulnerable communities, with disaster relief and recovery assistance largely dependent on local municipalities that often lack adequate capacity, resulting in delayed and insufficient responses. Despite comprehensive legal instruments, including the Disaster Management Act (No. 57 of 2002), significant gaps persist in stakeholder coordination, intergovernmental collaboration, and meaningful community participation. Limited integration of local knowledge, inadequate preparedness planning, and weak communication mechanisms further undermine disaster response and recovery efforts. The study underscores the importance of strengthening integrated governance, enhancing community education and awareness, and improving institutional capacity for proactive disaster risk reduction. It recommends strengthening collaborative partnerships, improving resource mobilization, and mainstreaming disaster risk management into local development planning. The study contributes to ongoing debates on decentralized disaster governance in developing contexts by highlighting the persistent disconnect between policy intent and implementation outcomes in disaster-prone municipalities.

Keywords: Municipal disaster management, Stakeholder collaboration, Community resilience, Climate-Induced hazards, Disaster risk reduction, Local governance.

1.Introduction

Global climate change has exacerbated severe weather events, including floods, storms, droughts, and heatwaves, primarily driven by rising greenhouse gas concentrations and unpredictable rainfall patterns. (Thomas & López, 2015). South Africa, which is heavily reliant on coal for 90% of its energy production (42.8 GW), ranks seventh worldwide in fossil fuel emissions, thereby intensifying its vulnerability to these catastrophes (Sarkodie & Adams, 2018). In the Eastern Cape Province, disasters have increased in frequency and intensity, scoring high on the disaster risk index and causing widespread devastation in the community (Ayompe & Epie, 2025). These events stem from both natural phenomena and human factors, such as emissions, deforestation, and governance shortcomings.

South Africa's regulatory framework for disaster management is comprehensive, anchored in the Constitution of the Republic of South Africa (1996), the State of Emergency Act (No. 64 of 1997), and the Disaster Management Act (No. 5king7 of 2002). The National Disaster Management Framework (2005) promotes an integrated approach that emphasizes risk prevention, mitigation, preparedness, response, and recovery, with decentralized centres across the national, provincial, and municipal levels of government. This positions South Africa as one of the leaders in integrating disaster risk reduction into governance. However, effective policy does not always equate to successful implementation, particularly in resource-constrained areas.

The O.R. Tambo District Municipality encompasses five local municipalities: King Sabata Dalindyebo, Nyandeni, Mhlontlo, Port St. Johns, and Ingquza Hill (ORTDM, 2020). Classified as disaster-prone, it has endured recurring calamities, including the 2015-2019 drought and the 2019 floods, which claimed

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lives and caused extensive damage. With the most severe recent event, the district accounting for 77/101 deaths of the Eastern Cape Province from the devastating floods and winter storms in June 2025, where King Sabata Dalindyebo municipality (Mthatha) recorded 149 mm within 24 hours(Jenna, 2019) (Jenna, 2019; & SA Government, 2025).

2. Problem statement

OR Tambo experienced a severe hydrological drought from 2015 to 2019, the worst since 1926. This period was characterized by lengthy dry periods, the largest of which lasted from 2014 to 2015, resulting in significant water stress, declines in crop productivity, and livestock losses. In 2015/2016, the National Disaster Management Centre classified the Eastern Cape, including the OR Tambo region, as a drought disaster region. The consequences included widespread food insecurity, with communal farmers reporting losses of millions of dollars (Bahta et al., 2016). In 2019, heavy floods and storms struck, claiming 10 lives and causing R1.1 billion in damage (Zoko M, 2025). Once again, from December 2021 to January 2022, heavy rains led to flooding and infrastructure failures, including bridges and mud structures, in low-lying areas. While the catastrophe affected the broader Eastern Cape, OR Tambo accounted for 8 casualties (ECCOGTA, 2022). In 2023, storms, landslides, and heavy rainfall in OR Tambo resulted in R4.5 billion in damage to roads and bridges (Bupape, 2025). While droughts unfold gradually and often lack immediate fatalities, floods deliver rapid, uncontrollable destruction, underscoring the need for proactive mitigation. Despite the establishment of MDMCs under Section 43 of the Disaster Management Act to specialize in risk assessment, capacity building, and coordinated response, persistent losses of life and damage to infrastructure in ORTDM reveal implementation failures. Scholarly accounts praise MDMCs' potential impact, yet recurring disasters indicate a disconnect between robust policies and on-ground execution. This study addressed this gap by scrutinizing the MDMC's spontaneous disaster response and alignment of resources and stakeholder relations to avert future harms.

3. Aim of the study

To evaluate the effectiveness of the O.R. Tambo District Municipality's Municipal Disaster Management Centre in coordinating stakeholders and delivering interventions across all phases of disaster management.

4. Research objectives

1. To assess the effectiveness of MDMC stakeholder collaboration in local disaster management.
2. To examine gaps in response efficiency, aid delivery, and stakeholder coordination across disaster phases.

5. Research questions

1. How effective is the Municipal Disaster Management Centre's (MDMC) collaboration with stakeholders in local disaster management?
2. What gaps exist in response efficiency, aid delivery, and stakeholder coordination across the different phases of disaster management?

6. Theoretical framework

This study is grounded in collaborative governance theory and social constructionism, which together provide a lens for observing the efficacy of Municipal Disaster Management Centres (MDMCs) and stakeholder relationships in disaster-prone regions such as the ORTDM. Collaborative governance theory, as defined by Ansell and Gash (2008), refers to a governance system in which public agencies engage non-stakeholders in formal, consensus-oriented, and deliberative decision-making processes to formulate or implement public policy and or manage public programs. Collaborative governance theory identifies six key elements: initiation by public institutions; participation by non-state actors; active involvement in decision-making; formal organization and collective meetings; consensus-based decision-making; and a focus on public policy.

In the context of disaster management, collaborative governance emphasizes coordinated action, shared responsibility, and trust among different

stakeholders, including government and non-governmental organizations, the private sector, and local communities (Emerson, Nabatchi, & Voets et al., 2021). It is particularly relevant for the MDMCs as effective disaster prevention, response, and recovery depend on inclusive platforms that integrate local knowledge, resources, and capacities. The theory also highlights adaptive management, learning, and continuous improvement through feedback mechanisms while acknowledging challenges such as power imbalances, conflicts, and resource constraints (Nabatchi & Emerson, 2021). Applying this theory enables a critical analysis of how stakeholder relationships and institutional arrangements shape disaster management outcomes at ORTDM, offering insights into more resilient governance (Ansell & Gash, 2008)

Social constructionism complements collaborative theory by positing that human qualities beyond inherited and developmental aspects are generated, maintained, and altered through social interactions (Burr, 2024). As a sociological theory of knowledge, it examines how collectively formed understandings of the world emerge, emphasizing that meanings are socially constructed and culturally specific rather than inherent realities (Vinney, 2019). In disaster management, social constructionism highlights how social, cultural, and political factors shape perceptions, interpretations, and responses to disasters, viewing them not solely as natural events but as outcomes of human activities and societal structures (Tierney, 2007; & Tierney, 2025).

Social and political dynamics affect disaster classification, prioritization, media framing, laws, and goals. (Drakes & Tate, 2022). This underscores the need for inclusive communication strategies tailored to diverse socioeconomic and cultural groups to enhance awareness, preparedness, trust, and proactive behaviour (Hilhorst & Bankoff, 2022). Social constructionism encourages disaster planning that involves marginalized populations through participatory techniques to incorporate varying techniques (Tierney, 2025). This theory is appropriate for the study, as it draws on participants' diverse perceptions and experiences, which vary across communities in the ORTDM.

By combining these theories, social constructionism tackles the cultural and interpretive aspects of disasters, while collaborative governance offers a structural framework for stakeholder coordination. When taken together, they highlight policy implementation gaps and promote inclusive, flexible approaches to decentralized disaster risk reduction.

7. Literature Review

The literature on disaster management in South Africa reveals a disconnect between the robust frameworks and practical implementation, particularly in vulnerable regions such as the Eastern Cape Province. Globally, climate change has intensified severe weather events such as floods, droughts, storms, and heatwaves driven by the rising greenhouse gas concentrations and unpredictable rainfall (Thomas & Lopez, 2015). South Africa, reliant on coal for 90% of its energy (42.8 GW) and ranking seventh globally in fossil fuel emissions, faces heightened vulnerability (Sarkodie & Adams, 2018). In the Eastern Cape, disasters have increased in frequency and intensity, with a high disaster risk index causing widespread community devastation (Ayompe et al., 2025). These events arise from natural and artificial factors such as emissions, deforestation, and governance shortfalls.

South Africa's regulatory framework is comprehensive, rooted in the Constitution of the Republic of South Africa (1996), the State of Emergency Act (No. 64 of 1997), and the Disaster Management Act (No. 57 of 2002). The National Disaster Management Framework (2005) advocates an integrated approach that emphasizes risk prevention, mitigation, preparedness, response, and recovery through decentralized centres at the national, provincial, and municipal levels. This positions South Africa as a leader in integrating disaster risk reduction into governance. However, effective policies do not guarantee successful implementation, especially in resource-constrained areas (Sitas et al., 2016).

The ORTDM, spanning 12,169.7 square kilometers with a population of 1,501,702, includes five local municipalities: King Sabata Dalindyebo, Nyandeni, Mhlontlo, Port St. Johns, and Ingquza Hill (ORTDM, 2024). Classified as disaster-prone, it has faced recurring hydrological and meteorological hazards

over the past decade, including storms, droughts, floods, and landslides, exacerbated by poverty, informal settlements, climate change, and inadequate infrastructure. Notable events include the 2015–2019 drought, the worst since 1926, causing water stress, crop failures, livestock losses, and food insecurity (Bahta, Jordaan, & Muyambo, 2016; Jenna, 2019); the 2019 floods claiming 10 lives and causing R1.1 billion in damage (Zoko, 2025); the 2021–2022 floods with 8 casualties and infrastructure failures (ECCOGTA, 2022); the 2023 storms resulting in R4.5 billion in damage (Bupape, 2025); and the June 2025 floods and storms accounting for 78 of 101 provincial deaths, with 149 mm of rain in 24 hours in King Sabata Dalindyebo (Jenna, 2019; Kassen, 2019; SA Government, 2025). Droughts unfold gradually, while floods cause rapid destruction, highlighting the need for proactive mitigation.

According to Lee et al. (2024), meteorological events caused the most damage between 1900 and 2015, and hydro-meteorological hazards are the most common types of disasters worldwide. In sub-Saharan Africa (SSA), the intensification of extreme climate events has led to significant economic and financial losses, making the region especially vulnerable to population growth, water scarcity, food insecurity, and a rising frequency of natural disasters (Ayanlade et al., 2022). Droughts, storms, and floods are major causes of both internal and cross-border displacement. Projections suggest that by 2050, there could be 86 million internal climate migrants in the region, worsening existing problems and increasing the risk of conflict (Carvalho, 2025). Despite minimal carbon emissions, projections indicate that by 2030, up to 118 million individuals living in severe poverty in Africa are likely to encounter droughts, floods, and high temperatures (World Meteorological Organization, 2024).

Despite MDMCs' mandate under Section 43 of the Disaster Management Act to conduct risk assessments, build capacity, and coordinate responses, persistent losses in the ORTDM indicate implementation failures and a policy-practice gap. Scholarly praise for MDMCs' potential contrasts with recurring disasters, underscoring the need to scrutinize spontaneous responses, resource alignment, and stakeholder relations.

8. Methodology

The study employed a qualitative research design, allowing for direct interaction between the researcher and participants. Data collection was conducted using a semi-structured interview schedule with questions targeting participants in the O.R. Tambo District Municipality. A purposive sampling method was applied to select 20 participants, ensuring that individuals with an interest and willingness to contribute were included. The total number of 20 participants was determined by data saturation, as participants became repetitive of the data already collected. Although the participants were undergraduate and postgraduate students, the study did not deliberately discriminate against other groups; this was the group that showed interest in participating. In qualitative research, the reliability of findings largely depends on the data collection approach (Dursun, 2023). Interviews were chosen because they are well-suited for obtaining detailed insights into participants' opinions, beliefs, experiences, and emotions (Gautam, 2023).

For data analysis, Thematic Content Analysis (TCA) was employed. This method involves identifying, interpreting, and reporting recurring patterns within the dataset through systematic coding (Kiger & Varpio, 2020). TCA enabled the researcher to thoroughly examine the shared experiences and perceptions of community members regarding stakeholder collaboration and the effectiveness of disaster response within the O.R. Tambo MDMCs.

Regarding ethical considerations, the study obtained ethical approval from the Walter Sisulu University through the faculty research committee of the Faculty of Management and Public Administration Sciences. Participants were informed of their rights before they began participating in the study, ensuring they understood them in accordance with ethical considerations.

9. Findings and recommendations

The study involved 20 participants from communities across the five local municipalities of the O.R. Tambo District. Data were gathered through structured interviews. The demographic profile showed that 70% of participants were male and 30%

female. In terms of age, 20% were aged 15–24 years, 60% were 25–34 years, and 20% were 35 years and older. Although the study was open to all racial groups, only two were represented: 95% Black and 5% Indian. The sample included both employed and unemployed individuals. Regarding education, all participants had either undergraduate or postgraduate qualifications, with 85% holding postgraduate degrees and 15% holding undergraduate degrees, indicating participants with postgraduate degrees were the most represented group in the study.

9.1 Disasters and their prevalence

Participants revealed that most disasters encountered the OR Tambo DM are natural, including floods, heavy storms, and occasionally water shortages or droughts. This can be attributed to the ever-changing climate, which makes it difficult to accurately predict the weather. Whenever rain falls, it falls in excessive amounts, and when droughts occur, they are more severe, affecting lives. Below is what some of the participants had to say:

1. "In my area, we often experience floods, which are frequent from spring until the end of autumn."
2. "We are used to heavy rains that normally destroy houses for people."
3. "In my municipality, which is KSD, around 2015/2016, we had a serious drought that resulted in a water shortage, and this continued until around early 2020, but now we are having continuous floods and tornadoes."
4. "Disasters have not affected my immediate surroundings, but the victims of disasters are always the poorest of the poor who live on the outskirts of town."
5. "Storms and rivers over flood."

Most participants reported that the most common disasters in their communities within the OR Tambo district municipality are natural, specifically heavy rains that cause floods and severe storms. The majority of those affected are poor individuals living in informal settlements.

Thomas and Lopez (2015) support the participants' comments by stating that climate-related calamities, such as droughts, heatwaves, storms, and floods, are on the rise worldwide, and that temperatures are increasing, becoming more varied and extreme.

According to a News24 report, the Eastern Cape provincial government had resolved to declare the province a drought disaster due to water shortages that have been ongoing for years in most parts of the province due to extremely low rainfall during the traditional rainy seasons, which has resulted in reduced access to water by households and farmers (Jenna, 2019). According to Santhia (2018), climate change is inextricably linked to development challenges. As a result, while climate change affects the entire world, the poorest regions and people bear the brunt.

9.2 Institutions that provide aid or disaster relief assistance

Participants stated that multiple institutions engage and offer support both during and after a crisis. Some participants reported receiving assistance from their local municipalities, others from the district municipality, and still others from both. Some participants claimed that non-profit organizations and humanitarian aid organizations provided support.

1. "The assistance we received was from the local municipality."
2. "Affected people in my community were assisted by the provincial government's intervention, working with the local municipality."
3. "We did not receive assistance from the municipality, but there were non-profit organizations and businesspeople who came to our rescue in terms of providing what we needed to survive the effects of the disaster."

According to the United Nations General Assembly Resolution 46/182 (1991), governments may request or accept foreign humanitarian aid from various humanitarian actors. Non-governmental groups, business sector interstate players, and other government departments may be among these entities.

Out of 20 participants, 17 individuals who said they had received support, 64,8 percent (11) of

participants reported receiving assistance from local municipalities; 5,8 percent (1) reported receiving assistance from both the local municipality and the district municipality; 5,8 percent (1) reported receiving assistance from the district municipality; 11,8 percent (2) reported receiving assistance from humanitarian aid; and 11,8 percent (2) reported receiving assistance from non-profit organizations. The study findings on who assists during disasters revealed that most participants indicated that local municipalities primarily provide first aid.

9.3 Usefulness of the assistance received

During disasters, municipal disaster management centers are supposed to respond to rescue and recover, but this is not merely a tick-box activity; it must serve a purpose. The study aimed to determine how participants, as community members receiving aid, perceived the assistance they received during their challenging times of tragedy. Some participants stated that the support provided was beneficial as a temporary measure for those affected. One participant stated that although assistance was offered, it was insufficient to meet the community's expectations and that the temporary shelters were in poor condition. One participant stated that help arrived really late.

1. “Very useful, as the temporary shelter was provided while a permanent solution was being sought.”
2. “It provided a temporary measure.”
3. “Very good because the main aim was to save lives and provide basic needs for the affected families.”
4. “Was not useful at all as life savers came 5 hours after the incident was reported.”
5. “Useful on a short-term basis.”
6. “Not enough, but helpful."
7. “Not really good because people who were affected received temporary homes and are not stable.”
8. “The municipality is slow to respond to simple things like when lights are off. Natural disasters are always beyond their scope.”
9. “We had to pay out of our own money.”
10. “Very good because the main aim was to save lives and provide basic needs for the affected families.”

According to the United Nations Office for the Coordination of Humanitarian Affairs, disaster management capacities have increased in recent years; however, rapidly changing dynamics among humanitarian actors reveal that there is no standardized way to respond. However, it is essential to acknowledge that these disasters occur across diverse socioeconomic and cultural contexts, and responses must be tailored to the specific emergency at hand. The United Nations Office for the Coordination of Humanitarian Affairs agrees with some participants who stated that assistance can become irrelevant or less beneficial if it does not respond to the specific needs of impacted populations in a particular situation.

10. Conclusions

10.1 Nature and Prevalence of Disasters

In the O.R. Tambo District Municipality, disasters are predominantly natural and climate-related, and mainly in the form of floods, heavy storms, droughts, and water shortages. These events are exacerbated by climate change, with patterns of excessive rainfall or prolonged dry spells having a significant impact on the livelihoods and infrastructure. Vulnerable populations are the poorest communities living in informal settlements on the outskirts of towns. This aligns with global trends in which climate-induced calamities intensify in resource-constrained areas (Thomas & Lopez, 2015; Santhia, 2018).

10.2 Effectiveness of MDMC's working relationships with key stakeholders

Local municipalities, district municipalities, provincial government, non-profit organizations, humanitarian aid organizations, and local businesses primarily provide disaster assistance. This indicates high reliability on government entities as first responders. Stakeholder coordination shows gaps with limited community involvement and a lack of integrated efforts. Within existing frameworks, such as the 2005 Disaster Management Framework and the Disaster Management Act, implementation failures result in persistent losses, revealing a disconnect between policy and practice.

10.3 Usefulness of assistance received

Assistance is generally perceived as applicable in the short term for saving lives and meeting basic needs. However, it is frequently delayed, insufficient to meet long-term expectations, or even relevant to specific community needs. Responses that are not tailored to communities' socioeconomic and cultural contexts lead to deficiencies, such as poor-quality temporary housing or slow recovery. Results support observations from the United Nations Office for the Coordination of Humanitarian Affairs that standardized responses tend to become ineffective in diverse settings.

11. Recommendations

11.1 Enhance stakeholder collaboration and coordination

Strengthen intergovernmental partnerships between various government levels to ensure fast and more integrated responses, including joint regular trainings and protocols for aid distribution to reduce possible delays. Incorporate participatory approaches that will involve diverse stakeholders, more especially vulnerable communities, in disaster planning and decision-making processes. Make use of local indigenous knowledge and experiences to tailor interventions, fostering trust and proactive behavior's in line with social constructionist principles.

11.2 Improve response efficiency and aid delivery

Invest in capacity building for the MDMCs, including resource mobilization, such as funding, to provide timely and sufficient assistance. Address delays by establishing rapid response teams and prepositioning supplies in high-risk areas. Develop context-based aid strategies that will go beyond short-term relief, including durable temporary shelters and long-term recovery plans to meet the unique needs of affected populations.

11.3 Boost disaster prevention and preparedness

Promote community education and awareness programs on disaster risks, with a focus on climate change adaptation. Encourage active public participation in prevention efforts, including the development of resilient infrastructure and early warning systems. Leverage the roles of non-governmental stakeholders by formalizing partnerships with businesses and NGOs for consistent aid during disasters, including donor contributions for infrastructure improvements.

11.4 Address broader systemic issues

Integrate local insights into policy implementation to bridge the gap between frameworks, such as the Disaster Management Act, and on-the-ground execution. Conduct regular evaluations of MDMC performance to hold officials accountable. Advocate for increased funding and resources in disaster-prone regions like O.R. Tambo, emphasizing poverty alleviation and infrastructure upgrades to mitigate impacts on marginalized groups. These recommendations aim to foster a more resilient, inclusive disaster management system, ultimately reducing the frequency and severity of impacts in the O.R. Tambo District Municipality.

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